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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/685,655   | 10/14/2003  | Sung-Jin Kim         | 8750-038            | 5662             |
| 20575  | 7590        | 06/30/2005           | EXAMINER            |                  |
| MARGER JOHNSON & MCCOLLOM, P.C.<br>1030 SW MORRISON STREET<br>PORTLAND, OR 97205 |             |                      | VU, HUNG K          |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2811                |                  |

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |              |
|------------------------------|-----------------|--------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s) |
|                              | 10/685,655      | KIM ET AL.   |
| Examiner                     | Art Unit        |              |
| Hung Vu                      | 2811            |              |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 08 April 2005.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-22 is/are pending in the application.  
 4a) Of the above claim(s) 1-11 and 17-22 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 12-16 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 10/14/03.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Invention of Claims 12-16 in the reply filed on 04/08/05 is acknowledged. The traversal is on the ground(s) that independent claim 12 is a generic claim which recites features that are shared by the embodiments illustrated in Figs. 5A, 5B and 5D. Accordingly, since claim 13 is best defined the invention of Fig. 5B, the examiner will consider claims 12-16 and Fig. 5B.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 1-11 and 17-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 04/08/05.

### *Claim Objections*

3. Claim 15 is objected to because of the following informalities:

In claim 15, line 1, "insulting layer" should be changed to "insulating layer" for clarity.

In claim 15, line 2, "consiting" should be changed to "consisting" for clarity.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Noguchi et al. (US 2001/0017418).

Noguchi et al. discloses, as shown in Figures 1-5 and 15, a semiconductor device having multi-layered interconnection lines, the semiconductor device comprising:

a plurality of parallel lower interconnection lines (4) formed on a semiconductor substrate (10), the lower interconnection lines including a first lower interconnection line, a second lower interconnection line, and a third lower interconnection line between the first and second lower interconnection lines, the first and second lower interconnection lines extending past an end of the third lower interconnection line [see Figs. 4 and 5, three middle lines 4];

an interlayer insulating layer (13) formed on an entire surface of the substrate having the lower interconnection lines;

a first upper interconnection line, a second upper interconnection line, and a third upper interconnection line (1) formed on the insulating layer, the first, second and third upper interconnection lines overlapping the first, second, and third lower interconnection lines, respectively [see Figs. 4 and 5, three lines 1 on the right side].

Regarding claim 13, Noguchi et al. discloses the device further comprising: a fourth upper interconnection line (1) formed on the insulating layer and located on the same line as the third upper interconnection line but separated from it by a distance, the distance between the third and fourth upper interconnection lines being greater than a longest focus distance [note that since the upper surface of the interlayer dielectric layer 13 and/or interconnection line 1 is planar, the focus should be zero].

Regarding claim 14, Noguchi et al. discloses the lower interconnection lines comprise a layer chosen from the group consisting of poly-silicon layer, a silicide layer and a metal layer [0088].

Regarding claim 15, Noguchi et al. discloses the interlayer insulating layer comprises at least one layer selected from the group consisting of BPSG, USG, PSG, SOG and PE-TEOS [0086] (note that USG and TEOS are silicon oxide).

Also note that the term “PE” is method recitation in a device claimed. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claim 16, Noguchi et al. discloses the upper interconnection lines comprise a layer chosen from the group consisting of poly-silicon layer, a silicide layer and a metal layer [0088].

*Conclusion*

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (571) 272-1666. The examiner can normally be reached on Mon-Thurs 6:00-3:30, alternate Friday 7:00-3:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The Central Fax Number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

June 23, 2005

Hung Vu  
Hung Vu

Primary Examiner